Amendments to the Claims

This listing of claims replaces prior versions:

Claim 38 (Currently Amended): A turbo-molecular pump comprising:

a rotor;

a stator surrounding said rotor;

a casing portion housing said stator and said rotor therein; [[and]]

a vane pumping section and/or a groove pumping section comprised by said stator and said rotor; and

a slide facilitating member for facilitating said stator to slide in a circumferential direction relative to said casing portion,

wherein a clearance is formed between said stator and said casing portion, so that, when an abnormal torque is applied from said rotor to said stator, at least a part of said stator is allowed to move radially into said clearance.

Claim 39 (Canceled)

Claim 40 (Currently Amended): A turbo-molecular pump according to claim [[39]] 38, wherein said slide facilitating member is a low friction member provided between said stator and said casing portion.

Claim 41 (Currently Amended): A turbo-molecular pump according to claim [[39]] 38, wherein said slide facilitating member is a support structure for rotatably supporting said stator.

Claim 42 (Previously Presented): A turbo-molecular pump according to claim 38, wherein an impact absorbing member is provided between said stator and said casing portion.

Claim 43 (Previously Presented): A turbo-molecular pump according to claim 38, further comprising an impact absorbing structure provided in said casing portion.

Claim 44 (Previously Presented): A turbo-molecular pump according to claim 43, wherein said impact absorbing structure comprises an inner casing surrounding said vane pumping section and/or said groove pumping section.

Claim 45 (Previously Presented): A turbo-molecular pump according to claim 43, wherein said impact absorbing structure comprises a friction reducing mechanism provided between an inner casing surrounding said vane pumping section and/or said groove pumping section, and said stator or said casing portion.

Claim 46 (Previously Presented): A turbo-molecular pump according to claim 43, wherein said impact absorbing structure comprises an impact absorbing member provided between an inner casing surrounding said vane pumping section and/or said groove pumping section, and said stator or said casing portion.

Claim 47 (Previously Presented): A turbo-molecular pump according to claim 38, further comprising an inner casing which surrounds said stator.

Claim 48 (Previously Presented): A turbo-molecular pump according to claim 47, wherein a friction reducing mechanism is provided between said inner casing, and said stator or said casing portion.

Claim 49 (Previously Presented): A turbo-molecular pump according to claim 38, further comprising a temperature adjusting mechanism for directly or indirectly heating or cooling said stator.

Claim 50 (Previously Presented): A turbo-molecular pump according to claim 49, wherein an inner casing surrounds said stator, and said temperature adjusting mechanism is provided on said inner casing.

Claim 51 (Currently Amended): A turbo-molecular pump according to claim 38, further comprising:

a sealing portion provided between a portion of said stator which is caused to be rotated with a rotating element by said abnormal torque, and a portion of said casing portion which is not rotated with the rotating element by said abnormal torque and is stationary.

Claim 52 (Previously Presented): A turbo-molecular pump according to claim 38, wherein an inner casing surrounds said stator, and said clearance is provided between said inner casing and said casing portion.

Claim 53 (Previously Presented): A turbo-molecular pump according to claim 52, wherein said inner casing is fixed by fitting a part of an inner surface or an outer surface of said inner casing to a cylindrical portion of said stator or to said casing portion.

Claim 54 (Previously Presented): A turbo-molecular pump according to claim 52, wherein said inner casing and/or said casing portion is comprised of a high thermal conductivity material.

Claim 55 (Previously Presented): A turbo-molecular pump according to claim 38, wherein said vane pumping section and/or said groove pumping section stator is attached to said casing portion by way of a friction reducing mechanism.

Claim 56 (Previously Presented): A turbo-molecular pump according to claim 38, wherein said vane pumping section is comprised by said stator and said rotor, and temperature adjusting mechanism is provided between a downstream side of said vane pumping section and an upstream side of an exhaust port of said turbo-molecular pump.

Claim 57 (Previously Presented): A turbo-molecular pump according to claim 38, wherein a sealing portion is provided between said stator of said vane pumping section and said casing portion.

Claim 58 (Previously Presented): A turbo-molecular pump according to claim 38, wherein a sealing portion is provided between said stator of said groove pumping section and said casing portion.

Claim 59 (Currently Amended): A turbo-molecular pump comprising:

a rotor;

a stator surrounding said rotor;

a casing portion housing said stator and said rotor therein; [[and]]

a vane pumping section and/or a groove pumping section comprised by said stator and said rotor; and

a slide facilitating member for facilitating said stator to slide in a circumferential direction relative to said casing portion,

wherein a clearance is formed between said stator and said casing portion, so that, when an abnormal torque is applied from said rotor to said stator, at least a part of said stator is allowed to rotate.

Claim 60 (Canceled)

Claim 61 (Currently Amended): A turbo-molecular pump according to claim [[60]] 59, wherein said slide facilitating member is a low friction member provided between said stator and said casing portion.

Claim 62 (Currently Amended): A turbo-molecular pump according to claim [[60]] 59, wherein said slide facilitating member is a support structure for rotatably supporting said stator.

Claim 63 (Previously Presented): A turbo-molecular pump according to claim 59, wherein an impact absorbing member is provided between said stator and said casing portion.

Claim 64 (Previously Presented): A turbo-molecular according to claim 59, wherein said stator has an impact absorbing structure.

Claim 65 (Previously Presented): A turbo-molecular pump according to claim 63, wherein said impact absorbing structure comprises an inner casing surrounding said vane pumping section and/or said groove pumping section.

Claim 66 (Previously Presented): A turbo-molecular pump according to claim 65, wherein said impact absorbing structure comprises a friction reducing mechanism provided between said inner casing, and said stator or said casing portion.

Claim 67 (Previously Presented): A turbo-molecular pump according to claim 65, wherein said impact absorbing structure comprises an impact absorbing member provided between said inner casing, and said stator or said casing portion.

Claim 68 (Previously Presented): A turbo-molecular pump according to claim 59, further comprising an inner casing which surrounds said stator.

Claim 69 (Previously Presented): A turbo-molecular pump according to claim 68, wherein a friction reducing mechanism is provided between said inner casing, and said stator or said casing portion.

Claim 70 (Previously Presented): A turbo-molecular pump according to claim 59, further comprising a temperature adjusting mechanism for directly heating or cooling said stator.

Claim 71 (Previously Presented): A turbo-molecular pump according to claim 70, wherein an inner casing surrounds said stator, and said temperature adjusting mechanism is provided on said inner casing.

Claim 72 (Currently Amended): A turbo-molecular pump according to claim 59, further comprising:

a sealing portion provided between a portion of said stator which is caused to be rotated with a rotating element by said abnormal torque, and a portion <u>of said casing portion</u> which is not rotated with the rotating element by said abnormal torque and is stationary.

Claim 73 (Previously Presented): A turbo-molecular pump according to claim 59, wherein an inner casing surrounds said stator, and said clearance is provided between said inner casing and said casing portion.

Claim 74 (Previously Presented): A turbo-molecular pump according to claim 73, wherein said inner casing is fixed by fitting a part of an inner surface or an outer of said inner casing to a cylindrical portion of said stator or to said casing portion.

Claim 75 (Previously Presented): A turbo-molecular pump according to claim 73, wherein said inner casing and/or said casing portion is comprised of a high thermal conductivity material.

Claim 76 (Previously Presented): A turbo-molecular pump according to claim 59, wherein said vane pumping section and/or said groove pumping section stator is attached to said casing portion by way of a friction reducing mechanism.

Claim 77 (Previously Presented): A turbo-molecular pump according to claim 59, wherein said vane pumping section is comprised by said stator and said rotor, and a temperature adjusting mechanism is provided between a downstream side of said vane pumping section and an upstream side of an exhaust port of said turbo-molecular pump.

Claim 78 (Previously Presented): A turbo-molecular pump according to claim 59, wherein a sealing portion is provided between said stator of said vane pumping section and said casing portion.

Claim 79 (Previously Presented): A turbo-molecular pump according to claim 59, wherein a sealing portion is provided between said stator of said groove pumping section and said casing portion.

Claim 80 (Previously Presented): A turbo-molecular pump comprising:

a casing portion housing a stator and a rotor therein;

a vane pumping section and/or a groove pumping section comprised by said stator and said rotor;

an inner casing surrounding said vane pumping section and/or said groove pumping section; and

a temperature adjusting mechanism provided inside said inner casing;

wherein said temperature adjusting mechanism is attached to a spiral groove pumping section spacer.

Claim 81 (Previously Presented): A turbo-molecular pump comprising:

a casing portion housing a stator and a rotor therein, said stator surrounding said rotor;

a vane pumping section and/or a groove pumping section comprised by said stator and said rotor;

an inner casing portion surrounding said stator;

a clearance provided between said inner casing portion and said casing portion; and

a sealing portion provided between a portion of said inner casing portion or said stator which is caused to be rotated with a rotating element by an abnormal torque which is applied

from said rotor to said stator, and said casing portion which is not rotated with the rotating element by said abnormal torque and is stationary.

Claim 82 (Previously Presented): A turbo-molecular pump according to claim 81, wherein said sealing portion is pressed in an axial direction of a main shaft.

Claim 83 (Currently Amended): A turbo-molecular pump comprising:

a casing portion housing a stator and a rotor therein, said stator surrounding said rotor;

a vane pumping section and/or a groove pumping section comprised by said stator and said rotor; [[and]]

a sealing portion provided between a portion of said stator which is caused to be rotated with a rotating element by an abnormal torque which is applied from said rotor to said stator, and a portion <u>of said casing portion</u> which is not rotated with the rotating element by said abnormal torque and is stationary<u>; and</u>

<u>a slide facilitating member for facilitating said stator to slide in a circumferential direction relative to said casing portion</u>.

Claim 84 (Previously Presented): A turbo-molecular pump according to claim 83, wherein said sealing portion is pressed in an axial direction of a main shaft.

Claim 85-87 (Canceled):

Claim 88 (Previously Presented): A turbo-molecular pump comprising:

a casing portion housing a stator and a rotor therein;

a vane pumping section and a groove pumping section comprised by said stator and said rotor; and

a cooling device provided between a downstream side of said vane pumping section and an upstream side of said groove pumping section.

Claim 89 (Previously Presented): A turbo-molecular pump according to claim 88, wherein another cooling device is provided at a downstream side of said cooling device.

Claim 90 (Previously Presented): A turbo-molecular pump comprising:

a casing portion housing a stator and a rotor therein;

a vane pumping section and a groove pumping section comprised by said stator and said rotor; and

a cooling device provided on said casing portion at a position corresponding to said groove pumping section.

Claim 91 (Previously Presented): A turbo-molecular pump according to claim 90, wherein said cooling device cools said stator and/or rotor of said vane pumping section.

Claim 92 (Previously Presented): A turbo-molecular pump according to claim 90, wherein a heat transfer path is provided between said cooling device and said stator of said vane pumping section.

Claim 93 (Previously Presented): A turbo-molecular pump according to claim 90, wherein another cooling device is provided at a downstream side of said cooling device.

Claim 94 (Previously Presented): A turbo-molecular pump comprising:

a casing portion housing a stator and rotor therein;

a vane pumping section and groove pumping section comprised by said stator and said rotor;

a heating source provided at a lower portion of said stator of said groove pumping section; and

a cooling device provided between a downstream side of said vane pumping section and an upstream side of said groove pumping section.

Claim 95 (Previously Presented): A turbo-molecular pump according to claim 94, further comprising an inner casing surrounding said stator and/or said rotor of said rotor of said vane pumping section and/or said groove pumping section.

Claim 96 (Previously Presented): A turbo-molecular pump according to claim 95, wherein a heat transfer path is provided between said inner casing and said casing portion.

Claim 97 (Previously Presented): A turbo-molecular pump according to claim 95, wherein a heat transfer path is provided between said inner casing and a stator vane spacer.

Claim 98 (Previously Presented): A turbo-molecular pump comprising:

a casing portion housing a stator and a rotor therein; and

a vane pumping section and/or a groove pumping section comprised by said stator and said rotor;

wherein said stator of said vane pumping section and/or said groove pumping section is rotatably provided with respect to said casing portion; and

an impact absorbing structure is provided at a portion close to an inlet of said casing portion.

Claim 99 (Previously Presented): A turbo-molecular pump according to claim 98, wherein said impact absorbing structure comprises a ring body, an attachment ring, and a plurality of stay members for coupling said ring body and said attachment ring concentrically.

Claim 100 (Previously Presented): A turbo-molecular pump comprising:

a casing portion housing a stator and a rotor therein;

a vane pumping section and/or a groove pumping section comprised by said stator and said rotor; and

a cooling device provided at a lower end portion of said stator of said groove pumping section.

Claim 101 (New): A turbo-molecular pump comprising:

a casing portion housing a stator and a rotor therein;

a vane pumping section and/or a groove pumping section comprised by said stator and said rotor; and

a heating source directly attached to a lower end portion of said stator of said groove pumping section at position lower than a lower end of said rotor of said groove pumping section.

Claim 102 (New): A turbo-molecular pump comprising:

a casing portion housing a stator and a rotor therein;

a vane pumping section and/or a groove pumping section comprised by said stator and said rotor; and

a heating source directly attached to a lower end surface of said stator of said groove pumping section.

Claim 103 (New): A turbo-molecular pump comprising:

a casing portion housing a stator and a rotor therein;

a vane pumping section and/or a groove pumping section comprised by said stator and said rotor;

a heating source provided on a portion of said stator which is caused to be rotated with a rotating element by an abnormal torque which is applied from said rotor to said stator; and

a slide facilitating member for facilitating said stator to slide in a circumferential direction relative to said casing portion.